Multiple Pulmonary Nodules in an Alcoholic Man

Stuart S. Sagel, M.D. and John V. Forrest, M.D.*

This 28-year-old man was found lying drunk alongside a railroad track, apparently having fallen from a moving train. An obvious fracture of the right humerus was treated. There were no pulmonary symptoms or clinical evidence of injury to the thoracic cage. Two weeks later the patient manifested marked paranoid and suicidal behavior, and was admitted to the psychiatric service for care. A routine chest roentgenogram was obtained on admission (Fig 1) and later oblique projections (Fig 2).
Diagnosis: Multiple Slowly Resolving Pulmonary Hematomas

PA and right oblique chest roentgenograms (Fig 1 and 2) reveal about seven large rounded masses in the right lower lobe. These did not change over the next four weeks. A diagnosis of metastatic tumor was considered, in view of the multiplicity of lesions and their failure to resolve. Diagnostic thoracotomy was performed, revealing multiple cystic areas with in the right lung. On aspiration these were found to be filled with thick bloody material. Wedge resection of one of the cysts was performed. Histologic examination (Fig 3) revealed a typical cystic intrapulmonary hematoma with a thick fibrous cyst wall.

The postoperative course was uneventful. A followup chest roentgenogram four months later showed some diminution in size of the remaining hematomas.

Intrapulmonary hematoma due to blunt nonpenetrating chest trauma, sometimes not very severe, probably results from sudden compression of lung tissue which produces shearing stress that tears the pulmonary parenchyma. Blood collects within this parenchymal tear. It usually assumes a spherical form due to the elastic recoil of the lung.

Pulmonary hematoma most commonly occurs in a lower lobe near the costophrenic angle, probably due to compression of lung by the pinching action of the diaphragm and chest wall. A posterior subpleural location is frequent, even when the site of trauma is anterior or lateral, because the posterior thorax near the spine is relatively fixed, so that the contrecoup effect is exerted posteriorly.

Pathologically, the pulmonary hematoma is usually a round mass covered with a smooth, whitish capsule and filled with liquid or clotted blood. The capsule, composed of tough fibrous tissue formed from organized blood coagulum, is responsible for the delay in resolution. While pain may occur at the site of chest wall trauma, often there are no physical findings to suggest external thoracic trauma. Symptoms are usually mild to absent. Hemoptysis occurs in approximately 50 percent of patients, but almost always consists of transitory blood streaking.

If the chest radiograph is taken shortly after the trauma, an ill-defined area of consolidation (contusion) is seen. Within a variable period, usually a few days, the peripheral contusion clears, and the characteristic well-defined spherical density, usually 2-5 cm in diameter, becomes discernible. Overlying rib fracture is often absent.

Pulmonary hematomas may occasionally be multiple. Up to three hematomas in one lung have been reported. The case reported here exhibited more hematomas than have previously been described. The usual roentgen course of a pulmonary hematoma is one of gradual decrease in size and finally disappearance. Significant complications are rare. Complete resolution may be as rapid as two weeks or require more than a year. The mere discovery of a pulmonary mass lesion coincident with a history of blunt chest trauma gives no assurance of etiology unless there is a subsequent clear-cut decrease in the size. This unequivocally distinguishes a hematoma from a neoplasm. If this does not occur, diagnostic thoracotomy may be required, as in the present patient. Multiple pulmonary nodules detected after a trauma, when grouped in the posterior portion of the lower lobe, may warrant a period of watchful waiting for several months.

REFERENCES